

No.

8100029



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

The Curators of the University of Missouri

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS OF SEED AS DETERMINED BY THE OWNER OF THE RIGHTS. (34 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

COTTON

'Delcot 311'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 19th day of November in the year of our Lord one thousand nine hundred and eighty-one.

Attest:

Samuel K. Lee
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R. Block
Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
 AGRICULTURAL MARKETING SERVICE
 LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

 FORM APPROVED
 OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

 No certificate for plant variety protection may
 be issued unless a completed application form
 has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY MO74-944		1b. VARIETY NAME Delcot 311		FOR OFFICIAL USE ONLY PV NUMBER 8100029	
2. KIND NAME Cotton, Upland		3. GENUS AND SPECIES NAME Gossypium hirsutum L.		FILING DATE 11/24/80	TIME 2:00 P.M.
4. FAMILY NAME (BOTANICAL) Malvaceae		5. DATE OF DETERMINATION October, 1974		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 11/24/80 10/19/81
6. NAME OF APPLICANT(S) The Curators of the University of Missouri		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 225 University Hall Columbia, MO 65211		8. TELEPHONE AREA CODE AND NUMBER	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) A public corporation per Section 172.020 R.S. Mo		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION MO		11. DATE OF INCORPORATION 1839	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: W. P. Sappenfield, Dept. of Agronomy, Univ. of MO.-Columbia Delta Center, P. O. Box 160, Portageville, MO 63873					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☐ 13B. Exhibit B, Novelty Statement.
- ☐ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☐ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.)		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED?		
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	<input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED		
15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (If "Yes," give name of countries and dates.)			
15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (If "Yes," give name of countries and dates.)			

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.	

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

 9/19/80
 (DATE)

[Signature]
 (SIGNATURE OF APPLICANT)
 Asst. Vice President for Business Serv.

Business Office

(SIGNATURE OF APPLICANT)

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- 5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- 14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

"Delcot 311" cotton (Gossypium hirsutum L.), formerly designated MO74-944, was developed by W. P. Sappenfield, Professor, Dept. of Agronomy, Missouri Agricultural Experiment Station, Delta Center, Portageville, MO and released in March 1, 1980.

$$BC_2S_1 \left\{ \begin{array}{l} \text{Delcot 277 Sel}_{F_{11}} \times [(\text{Delcot 277 x Model})_{F_1} \times \text{Delcot 277 Sel}_{F_{11}}] BC_1S_3 \end{array} \right\}$$

$$BC_1S_1 \left\{ \begin{array}{l} \text{Delcot 277 Sel}_{F_{11}} \times [(\text{Delcot 277 Sel x Model})_{F_1} \times \text{Delcot 277 Sel}_{F_9}] BC_1S_3 \end{array} \right\}$$

$$F_2 \text{ Mass Sel x 71CX14+15+17+18 (Composite)}$$

$$F_1$$

$$F_2 \text{ Sel S68-182(31) Greenhouse MDR screening}$$

$$F_3 \text{ Sel B74-944 (Field Nursery)}$$

$$F_4-F_7 \text{ Testing and Mass Selection}$$

$$F_8 \text{ MO74-944 designated Delcot 311}$$

²Professor, Dept. of Agronomy, Univ. of Missouri College of Agric. and Agric. Exp. Stn. Delta Center, Portageville, MO 63873.

8100029

71CX-14 and 71CX-15 were BC_2S_3 mass selections derived from $\{ \{ \text{Delcot 277 Sel} \times 101-102 B \}_{F_1} \times [(\text{Delcot 277 Sel} \times \text{MoDel})_{F_1} \times \text{Delcot 277 Sel}]_{BC_1} \}_{F_3} \times \text{Delcot Sels S65-391, 396} \}$.

71CX-17 and 71CX-18 were BC_2S_3 selections derived from $\{ [\text{Delcot 277 Sel} \times (\text{MoDel} \times \text{Auburn 56-B}_2\text{B}_6)_{F_3}]_{BC_1} S_3 \times \text{Delcot Sels S65-391, 396} \}$.

MoDel originated as an F_3 plant from $\{ [(\text{TJ} \times \text{Early Fluff 310})_{F_3} \times \text{Auburn 56}]_{F_3} \times \text{Auburn 56-5714 BR} \}$.

TJ was derived from TH108 x Hopi Acala 6-1-4. TH108 originated from the trispecies hybrid G. hirsutum-arboreum-thurberi.

Early Fluff 310 was a selection from (Cook x Empire) x Tanguis. "Tanguis" is a variety of G. barbadense.

The crossing of 101-102 B(B_2B_3), Auburn 56 (B_2B_6) and MoDel with the Delcot 277 lines provided sources of gene combinations for immunity to the bacterial blight pathogen, Xanthomonas malvacearum (E. F. Sm) Dows; races 1,2,10,11 and 12; tolerance to the Verticillium wilt pathogen, Verticillium dahliae Kleb and resistance to the Fusarium wilt-root knot disease pathogens, Fusarium oxysporum Schlect. f. vasinfectum (Atk.) Snyd. and Hans. and Meloidogyne incognita (Kofoid and White) Chitwood.

Following the last crossing series (F_2 Mass Sel x 71CX 14+15+17+18 Composite), the F_2 plant, S68-182(31), was isolated from the bulk using the Missouri inoculation-selection greenhouse procedure for screening plants resistant to root-knot nematodes, bacterial blight, Fusarium wilt and Verticillium wilt. In 1974 field tests, the S68-182(31) F_3 line demonstrated superior agronomic, fiber quality and disease resistance characteristics and was selected for further evaluation. It was then designated B74-944. From 1975-1979, B74-944, later designated M074-944, underwent critical

8100029

evaluation under diverse soil and disease conditions. During this period disease susceptible, off-type and lint quality inferior isolates were rogued. During 1978-79, MO74-944 also was grown extensively in out-state regional trials for comparative observations for lint quality and limits of adaptation. Production of breeder's and foundation seed was initiated in 1978 and will be maintained by the Foundation Seed Stock Project, Dept. of Agronomy, MO Agric. Exp. Sta., Columbia MO. Seed also has been deposited in the National Seed Storage Lab. at Fort Collins, Colorado.

During the past four years of evaluation and isolated seed increase, Delcot 311 plants have appeared relatively stable and uniform during any given season but plants may vary from intermediate to more compact in a stressed environment or from intermediate to more spreading in late plantings and/or under conditions of above optimum soil moisture, fertility and temperature. Similarly, Delcot 311 fiber characteristics appear stable, relatively, when compared with Delcot 277, Stoneville 213 and Coker 310. It must be recognized that fiber strength, length, uniformity and micronaire varies from season to season with changes in seasonal environment.

Off-type plants approaching semi-cluster may appear 1:600 and small bolled, small bracted spindly plants may occur 1:900. Plants that show some degree of reaction (speckled resistance to susceptibility) to Xanthomonas malvacearum, mixed inoculum of races 1,2,10,11 and 12 may occur 1:50[±]10. The remaining plants appear immune to the mixed inoculum. All plants in advanced generations are expected to approach immunity to X. mal. races 1,2,7,10,11 and 12.

13B. Exhibit B: Novelty Statement

Delcot 311 is most similar to Delcot 277J. Delcot 311 differs from Delcot 277J in having a higher percent of lint, smaller bolls and seeds and resistance to bacterial blight, Xanthomonas malvacearum races 1,2,10,11 and 12. Delcot 311 has intermediate green leaf color. Delcot 277J has light green leaf color. Delcot 311 is more vigorous and taller growing than Delcot 277J. Delcot 311 has storm resistance, normal open bolls. Delcot 277J has fully-opened and often storm susceptible bolls and stringy locks at maturity. Delcot 311 produces medium length fiber while Delcot 277J produces significantly longer fiber. Delcot 311 produces fiber with a higher length uniformity ratio, a higher micronaire and a higher yarn tenacity than Delcot 277J. Delcot 311 fiber also is characterized by a high fiber elasticity (Stelometer E_1) like Delcot 277.

Table 2. Comparative Boll, Seed and Lint Properties of Delcot 311 and Four Commercial Cotton Varieties Grown in Southeast Missouri 1975-78 (10 Tests)

Variety or Strain	Lint ^{1/} Fraction %	Boll ^{2/} Wt. g	Seed ^{2/} Index g	2.5% ^{1/} Span Length in	Length ^{1/} Uniformity Ratio	Micro- ^{1/} naire	Yarn ^{2/} Tenacity 27 Tex
	10 ^{3/}	2	2	10	10	10	8
Delcot 311 (Mo74-944)	37.5	6.30	12.48	1.12	47	4.4	12.89
Stoneville 213	36.2	5.95	12.48	1.13	45	4.8	11.51
Delcot 277J	36.8	6.65	13.15	1.19	44	4.2	12.51
Coker 310	36.9	6.10	12.75	1.19	44	4.5	12.36
Deltapine 55	-	5.45	11.25	-	--	-	-
	5 ^{3/}			5	5	5	5
Delcot 311 ^{2/}	38.2	-	-	1.14	48	4.5	13.16
Deltapine ^{2/} 55	38.8	-	-	1.14	44	4.6	11.98

^{1/} 1975-78 (3 years)

^{2/} 1976 + 78 (2 years)

^{3/} Number of tests

Delcot 311 Cotton: Its Characteristics,
Performance and Production Guide. W.P. Sappanfield
U. Missouri-Columbia AES Dept Agron-
misc Rept No. 80-02

Missouri Crop Performance 1979 Cotton Spec #247 Jan 1980
 v. of Missouri - Columbia AES.

TABLE 12. SUMMARY OF FIBER CHARACTERISTICS OF COTTON VARIETIES GROWN AT FIVE MISSOURI LOCATIONS IN 1979.

BRAND/VARIETY	MICRO-NAIRE	STAPLE LENGTH (50%)	STAPLE LENGTH (2.5%)	ELONGATION (%)	STRENGTH (G/TEX)
BRYCO 4	3.56	0.55	1.16	6.70	20.72
COKER 304	3.77	0.58	1.23	6.60	22.83
COKER 310	3.79	0.57	1.23	6.92	22.28
COKER 315	3.88	0.59	1.23	6.75	22.28
DELCO 277J	3.34	0.59	1.22	8.30	22.54
DELTAPINE 26	3.57	0.56	1.16	7.88	21.87
DELTAPINE 55	3.32	0.55	1.20	7.42	21.02
DELTAPINE 61	3.85	0.57	1.19	8.52	21.23
DELTAPINE 70	3.55	0.55	1.15	7.63	22.46
DELTAPINE 7141	3.55	0.56	1.18	7.07	22.05
MO63-277-1B	3.56	0.58	1.21	7.30	23.18
MO74-944	3.71	0.58	1.16	8.00	23.39
STONEVILLE 213	3.87	0.55	1.15	7.99	21.11
STONEVILLE 825	3.80	0.55	1.16	7.25	21.11
VAIL 7	3.48	0.54	1.16	6.67	20.62
MEAN	3.65	0.56	1.18	7.42	21.83
LSD.05	0.12	0.01	0.01	0.34	0.45
C.V. %	5.56	3.00	1.72	7.21	3.26

NS OBSERVED DIFFERENCES FOR A GIVEN CHARACTERISTIC ARE NOT SIGNIFICANT AT THE 5% LEVEL.

Advanced II-MDR Cotton Strains combining three locations 1977

Table continued

Variety	Verticillium Wilt Rating
Coker 310	2.70 a
B74-574 BR	2.70 a
Stoneville 213	2.50 a
Auburn M	2.20 ab
B72-86 BR	1.70 bc
B72-85 BR	1.60 bc
MDR-ASII	1.60 bc
B74-1164 BR	1.60 bc
B74-228 BR	1.60 bc
B74-944 BR	1.53 bc
B74-783 BR	1.53 bc
B74-205 BR	1.50 bc
E74-449 BR	1.43 bc
B74-750 BR	1.33 c
B74-788 BR	1.27 c
MDR-ASI	1.27 c
B74-733 BR	1.27 c
B74-409 BR	1.17 c
B74-582 BR	1.17 c
B74-1025 BR	1.10 c
MO63-277 BR-1A	1.00 c
B73-409 BS	1.00 c
B74-341 BR	1.00 c
B74-781 BR	1.00 c
MO63-277 J	1.00 c

Variety	Bacterial Blight Incidence
Auburn M	2.44 a
B73-409 BS	2.22 b
Coker 310	1.89 c
MO63-277 J	1.78 c
Stoneville 213	1.56 d
B74-449 BR	1.11 e
B72-85 BR	1.00 e
MO63-277 BR-1A	1.00 e
B74-205 BR	1.00 e
B74-228 BR	1.00 e
B74-341 BR	1.00 e
B74-409 BR	1.00 e
B72-86 BR	1.00 e
B74-574 BR	1.00 e
B74-582 BR	1.00 e
B74-733 BR	1.00 e
B74-750 BR	1.00 e
B74-781 BR	1.00 e
B74-783 BR	1.00 e
B74-788 BR	1.00 e
B74-944 BR (Delcot 311)	1.00 e
B74-1025 BR	1.00 e
B74-1164 BR	1.00 e
MDR-ASI	1.00 e
MDR-ASII	1.00 e

1.-= no infection or leaf symptoms
5- very severe infection

Regional High Quality Test Portqgeville Mo. 1978

Table

Variety	1st Flower Days
Stoneville 1434	62.67 a
Stoneville 213	62.67 a
McNair 3034	62.67 a
B73-944	62.00 ab
MO63-277 J	62.00 ab
Acala SJ-5	61.33 abc
MO74-944	61.33 abc
PD 695	61.33 abc
PD 4585	61.00 abc
B71-1125	61.00 abc
Coker 310	60.67 abcd
MO63-277 1B	60.33 abcd
B74-1025	60.00 abcd
McNair 220	59.67 abcd
McNair 3150	59.33 bcd
McNair 3151	59.33 bcd
McNair 235	59.33 bcd
Stoneville 1395	59.00 bcd
C. 310 MDR	59.00 bcd
Deltapine 264	58.67 cd
MoDel MDR	58.33 cd
Coker 4601	57.67 d
Coker 6118	57.67 d
PD 4548	57.67 d
B73-1203	57.67 d

Variety	Bacterial Blight Incidence
PD 4548	4.00 a
PD 4585	3.67 ab
McNair 220	3.33 abc
McNair 3150	3.33 abc
PD 695	3.00 abcd
McNair 3151	3.00 abcd
Stoneville 1395	3.00 abcd
McNair 235	3.00 abcd
MO63-277 J	3.00 abcd
Acala SJ-5	3.00 abcd
Coker 6118	2.67 bcde
McNair 3034	2.67 bcde
Stoneville 1434	2.67 bcde
Deltapine 264	2.67 bcde
Coker 310	2.33 cde
Stoneville 213	2.00 def
Coker 4601	1.67 ef
MO63-277 1B	1.00 f
MO74-944 (Delcot 311)	1.00 f
B73-944	1.00 f
B71-1125	1.00 f
B73-1203	1.00 f
B74-1025	1.00 f
C. 310 MDR	1.00 f
MoDel MDR	1.00 f

1= no infection or leaf symptoms
5= very severe infection.

EXHIBIT C
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY
COTTON (GOSSYPIMUM SPP.)

FOR OFFICIAL USE ONLY

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT:
The Curators, University of Missouri

ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code)
225 University Hall,
University of Missouri
Columbia, MO 65211

P.V. NO. NUMBER
81000000

VARIETY NAME OR TEMPORARY
DESIGNATION
DELCOT 311

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. 0 8 9 or 0 9) when number is either 99 or less or 9 or less.

1. SPECIES:

1 = GOSSYPIMUM HIRSUTUM 2 = GOSSYPIMUM BARBADENSE

2. AREA(S) OF ADAPTION (0 = Not Tested, 1 = Not Adopted, 2 = Adopted):

0 2 DELTA 2 CENTRAL 2 HIGH PLAINS

0 0 WESTERN LOW HOT VALLEYS 0 SAN JOAQUIN 0 OTHER (Specify)

3. MATURITY (50% Open Boll):

0 4 NO. OF DAYS EARLIER THAN 3 1 = COKER 310 2 = DELTAPINE 16 3 = STONEVILLE 213
0 2 NO. OF DAYS LATER THAN 8 4 = PAYMASTER 111 5 = ACALA 1517-70 6 = ACALA SJ-1
7 = LANKART 57 8 = OTHER (Specify) Delcot 277J

4. PLANT HABIT:

2 1 = SPREADING 2 = INTERMEDIATE 3 = COMPACT 3 = OTHER (Specify) Intermediate

5. PLANT HEIGHT:

0 5 CM. SHORTER THAN 1 3 1 = COKER 310 2 = DELTAPINE 16 3 = STONEVILLE 213
1 1 CM. TALLER THAN 3 4 = PAYMASTER 111 5 = ACALA 1517-70 6 = ACALA SJ-1
7 = LANKART 57 8 = OTHER (Specify)

6. MAIN STEM:

3 1 = LAX 2 = ASCENDING 3 = ERECT 2 5 CM. TO FIRST FRUITING BRANCH 0 7 NO. OF NODES TO FIRST FRUITING BRANCH
(From cotyledonary node)

7. LEAF:

1 1 CM. WIDTH OF WIDEST LEAVES AT MATURITY 3 1 = GLABROUS (HAIRS AS SPARSE AS D. SMOOTH) 2 = PUBESCENT (STONEVILLE 213)
2 = SMOOTH LEAF (DELTAPINE SMOOTH LEAF) 3 = PUBESCENT (STONEVILLE 213)
4 = HEAVY PUBESCENCE (H₁ OR H₂) 5 = OTHER (Specify)

8. LEAF PUBESCENCE:

1 1 CM. WIDTH OF WIDEST LEAVES AT MATURITY 3 3 = DARK GREEN (ACALA-442) 4 = RED
2 = LIGHT GREEN 3 = DARK GREEN (ACALA-442) 4 = RED
5 = OTHER (Specify) Intermediate between light and dark green

9. LEAF COLOR:

5 1 = VIRESCENT YELLOW 2 = LIGHT GREEN 3 = DARK GREEN (ACALA-442) 4 = RED
5 = OTHER (Specify) Intermediate between light and dark green

10. LEAF TYPE:

1 1 = NORMAL 2 = OKRA 3 = SUPER OKRA 4 = OTHER (Specify)

11. FLOWER:

2 1 = NECTARILESS 2 = NECTARIED 1 Pollen: 1 = CREAM 2 = YELLOW

12. FRUITING BRANCH TYPE:

1 1 = CLUSTER 2 = SHORT 3 = NORMAL 2 1 = DETERMINATE 2 = INDETERMINATE

13. GOSSYPOL CONDITION:

3 1 = GLANDLESS 2 = REDUCED GLANDS 3 = NORMAL GLANDS 1 2 = HIGH BUD GOSSYPOL 2 = MODERATE (DPL-16)

14. SEEDS:

2 1 = SPARSE (GREGG 35) 2 = MODERATE (DPL-16) 3 = HEAVY (ACALA SJ-1) 4 = OTHER (Specify)

15. SEED INDEX:

2 1 = SPARSE (GREGG 35) 2 = MODERATE (DPL-16) 3 = HEAVY (ACALA SJ-1) 4 = OTHER (Specify)

15. BOLLS: ☐ 1 = 3-4 ☐ 2 = 4-5 ☐ 3 = 6-8 ☐ 4 = 9-12 ☐ 5 = 13-16 ☐ 6 = 17-20 ☐ 7 = 21-24 ☐ 8 = 25-28 ☐ 9 = 29-32 ☐ 10 = 33-36 ☐ 11 = 37-40 ☐ 12 = 41-44 ☐ 13 = 45-48 ☐ 14 = 49-52 ☐ 15 = 53-56 ☐ 16 = 57-60 ☐ 17 = 61-64 ☐ 18 = 65-68 ☐ 19 = 69-72 ☐ 20 = 73-76 ☐ 21 = 77-80 ☐ 22 = 81-84 ☐ 23 = 85-88 ☐ 24 = 89-92 ☐ 25 = 93-96 ☐ 26 = 97-100

2. Locules: ☐ 2 = 4-5 ☐ 3 = 6-8 ☐ 4 = 9-12 ☐ 5 = 13-16 ☐ 6 = 17-20 ☐ 7 = 21-24 ☐ 8 = 25-28 ☐ 9 = 29-32 ☐ 10 = 33-36 ☐ 11 = 37-40 ☐ 12 = 41-44 ☐ 13 = 45-48 ☐ 14 = 49-52 ☐ 15 = 53-56 ☐ 16 = 57-60 ☐ 17 = 61-64 ☐ 18 = 65-68 ☐ 19 = 69-72 ☐ 20 = 73-76 ☐ 21 = 77-80 ☐ 22 = 81-84 ☐ 23 = 85-88 ☐ 24 = 89-92 ☐ 25 = 93-96 ☐ 26 = 97-100

3. Pinned: ☐ 1 = NONE ☐ 2 = FINELY ☐ 3 = COURSELY

4. Type: ☐ 1 = STORMPROOF (WESTBURN 70) ☐ 2 = STORM-RESISTANT (LANKART 57) ☐ 3 = OPEN (DELTAPINE 16)

5. Shape: ☐ 1 = LENGTH < WIDTH ☐ 2 = LENGTH = WIDTH ☐ 3 = LENGTH > WIDTH

16. BRACTEOLAS: ☐ 1 = LENGTH < WIDTH ☐ 2 = LENGTH = WIDTH ☐ 3 = LENGTH > WIDTH

Teeth: ☐ 1 = FINE ☐ 2 = COURSE ☐ 3 = 8-10 ☐ 4 = OTHER (Specify) 10-12

17. YIELD: Compared to... ☐ 1 = COKER 310 ☐ 2 = DELTAPINE 16 ☐ 3 = STONEVILLE 213

PERCENT LESS THAN ☐ 1 = 0-10 ☐ 2 = 11-20 ☐ 3 = 21-30 ☐ 4 = 31-40 ☐ 5 = 41-50 ☐ 6 = 51-60 ☐ 7 = 61-70 ☐ 8 = 71-80 ☐ 9 = 81-90 ☐ 10 = 91-100

PERCENT MORE THAN ☐ 1 = 0-10 ☐ 2 = 11-20 ☐ 3 = 21-30 ☐ 4 = 31-40 ☐ 5 = 41-50 ☐ 6 = 51-60 ☐ 7 = 61-70 ☐ 8 = 71-80 ☐ 9 = 81-90 ☐ 10 = 91-100

18. FIBER LENGTH (Complete one or more of the following and give the means): ☐ 1 = COKER 310 ☐ 2 = DELTAPINE 16 ☐ 3 = STONEVILLE 213

SPAN LENGTH 50% ☐ 1 = 1 ☐ 2 = 2 ☐ 3 = 3 ☐ 4 = 4 ☐ 5 = 5 ☐ 6 = 6 ☐ 7 = 7 ☐ 8 = 8 ☐ 9 = 9 ☐ 10 = 10

SPAN LENGTH 2.5% ☐ 1 = 1 ☐ 2 = 2 ☐ 3 = 3 ☐ 4 = 4 ☐ 5 = 5 ☐ 6 = 6 ☐ 7 = 7 ☐ 8 = 8 ☐ 9 = 9 ☐ 10 = 10

MEAN LENGTH ☐ 1 = 1 ☐ 2 = 2 ☐ 3 = 3 ☐ 4 = 4 ☐ 5 = 5 ☐ 6 = 6 ☐ 7 = 7 ☐ 8 = 8 ☐ 9 = 9 ☐ 10 = 10

UNIFORMITY RATIO (MEAN/U.H.M.) ☐ 1 = 1 ☐ 2 = 2 ☐ 3 = 3 ☐ 4 = 4 ☐ 5 = 5 ☐ 6 = 6 ☐ 7 = 7 ☐ 8 = 8 ☐ 9 = 9 ☐ 10 = 10

UNIFORMITY INDEX (50% SPAN/2.5% SPAN) ☐ 1 = 1 ☐ 2 = 2 ☐ 3 = 3 ☐ 4 = 4 ☐ 5 = 5 ☐ 6 = 6 ☐ 7 = 7 ☐ 8 = 8 ☐ 9 = 9 ☐ 10 = 10

19. FIBER STRENGTH AND ELONGATION: ☐ 1 = COKER 310 ☐ 2 = DELTAPINE 16 ☐ 3 = STONEVILLE 213

ELONGATION ☐ 1 = 1 ☐ 2 = 2 ☐ 3 = 3 ☐ 4 = 4 ☐ 5 = 5 ☐ 6 = 6 ☐ 7 = 7 ☐ 8 = 8 ☐ 9 = 9 ☐ 10 = 10

YARN STRENGTH (Give test method) ☐ 1 = 1 ☐ 2 = 2 ☐ 3 = 3 ☐ 4 = 4 ☐ 5 = 5 ☐ 6 = 6 ☐ 7 = 7 ☐ 8 = 8 ☐ 9 = 9 ☐ 10 = 10

Yarn Tenacity-27 Tex ☐ 1 = 1 ☐ 2 = 2 ☐ 3 = 3 ☐ 4 = 4 ☐ 5 = 5 ☐ 6 = 6 ☐ 7 = 7 ☐ 8 = 8 ☐ 9 = 9 ☐ 10 = 10

20. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

VERTICILLIUM WILT ☐ 0 ☐ 1 ☐ 2

BACTERIAL BLIGHT (Race 2) ☐ 0 ☐ 1 ☐ 2

ANTHRACNOSE ☐ 0 ☐ 1 ☐ 2

RUST ☐ 0 ☐ 1 ☐ 2

OTHER (Specify) ☐ 0 ☐ 1 ☐ 2

21. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

BOLL WEEVIL ☐ 0 ☐ 1 ☐ 2

APHID ☐ 0 ☐ 1 ☐ 2

FLEAHOPPER ☐ 0 ☐ 1 ☐ 2

LEAFWORM ☐ 0 ☐ 1 ☐ 2

FALL ARMYWORM ☐ 0 ☐ 1 ☐ 2

GRASSHOPPER ☐ 0 ☐ 1 ☐ 2

LYGUS ☐ 0 ☐ 1 ☐ 2

PINK BOLLWORM ☐ 0 ☐ 1 ☐ 2

STINKBUG ☐ 0 ☐ 1 ☐ 2

THRIP ☐ 0 ☐ 1 ☐ 2

CUTWORM ☐ 0 ☐ 1 ☐ 2

SPIDERMITES ☐ 0 ☐ 1 ☐ 2

OTHER (Specify) ☐ 0 ☐ 1 ☐ 2

REFERENCES: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(1) Brown, Harry B., and J. O. Ware, 1958, Cotton, McGraw-Hill Book Company, Inc., New York.

(2) Lewis, C. F., and H. H. Ramey, Jr., 1971, 1970 Regional Cotton-Variety Tests, ARS 34-130, United States Department of Agriculture.

8100029

13D. Exhibit D: Additional Description of Delcot 311

Delcot 311 is an upland, medium staple cotton, Gossypium hirsutum L. Delcot 311 maturity (50% open bolls) is 4 days earlier than Stoneville 213 but 2 days later than Delcot 277J.

Delcot 311 plant habit is intermediate between spreading and compact but vary from intermediate to more compact in a stressed environment or from intermediate to more spreading in late plantings and/or under conditions of above optimum soil moisture, fertility and temperature.

Delcot 311 plants average 5 cm shorter than Coker 310 and 11 cm taller than Stoneville 213. Delcot 311 stalks are erect with high off-ground initial fruiting branches.

Mature normal type leaves of average pubescence of Delcot 311 are average in size but are reduced under stress and increased in environments with above optimum soil moisture, fertility and temperature or in late plantings.

Delcot 311 leaf color is intermediate between light and dark green. Delcot 277 leaves are light green and Stoneville 213 leaves are normal dark green when soil fertility is optimum.

Delcot 311 flowers are nectaried. Petals and anthers are cream colored.

Delcot 311 plants are indeterminate with normal fruiting branches. Fruiting branches with short first internodes may develop under stress.

Delcot 311 possesses normal size boll, seed and vegetative gossypol bearing glands. Bud gossypol content is normal.

Delcot 311 seed index averages $12.8 \pm .4$ grams and show moderate seed fuzz. Delcot 311 mature open-type bolls normally possess 4-5 locules and approximately 30 seeds. They contain an average of 6.30 g seed cotton per boll which averages 37.5% lint. Boll carpel walls are finely pitted. Bolls are broader in their middle than at their base and their length is longer than their width.

Delcot 311 bracts often are conspicuous. Their length is greater than the width. Teeth are usually coarse and numerous.

Delcot 311 fiber is shorter in length, but more uniform than that of Delcot 277. Its fiber length equals that of Stoneville 213. Delcot 311 micronaire is coarser than that for Delcot 277 but finer than that of Stoneville 213. Delcot 311 fiber is stronger than that of either Delcot 277 or Stoneville 213. The fiber when spun produces excellent yarns. Delcot 311 is resistant to Verticillium wilt, the Fusarium wilt-root knot disease complex and to bacterial blight, races 1,2,11 and 12. It has continued to segregate some for resistance to race 10.

Delcot 311 is a full season variety in the northern portions of the Mississippi Delta. It possesses exceptional seedling vigor potential and high "off-ground" fruiting characteristics. Delcot 311 has produced excellent lint yields on sand, loam and clay soils, locally, 1975-79, and in wide range regional tests, 1978-79.